

CLAIMS

What is claimed is:

1. A method for displaying digital interface symbol information from at least one analog signal, the digital interface symbol information including encoded symbols and decoded information, the method comprising:
 - capturing a set of data samples of the at least one analog signal at a frequency at least as high as the switching rate of the at least one analog signal;
 - converting the set of data samples into at least one serial bit stream using a clock;
 - searching the at least one serial bit stream for one or more sync symbols; identifying the encoded symbols in the at least one serial bit stream using the sync symbols; and
 - displaying at least some of the digital interface symbol information with a representation of the at least one analog signal in a correlated fashion.
2. The method of claim 1, further comprising decoding the encoded symbols into the decoded information.
3. The method of claim 1, wherein the frequency of the capturing step is at least eight times as high as the switching rate of the at least one analog signal.
4. The method of claim 1, further comprising recovering the clock from the at least one analog signal, the clock being an electronic signal.
5. The method of claim 4, wherein the recovering step is accomplished by way of an analog hardware phase-locked loop (PLL).

6. The method of claim 4, wherein the recovering step is accomplished
2 by way of a digital hardware PLL.

7. The method of claim 1, further comprising recovering the clock from
2 the set of data samples, the clock being a list of locations in time relative to the set of data samples.

8. The method of claim 7, wherein the recovering step is accomplished
2 by a software PLL.

9. The method of claim 1, wherein the digital interface symbol
2 information displayed by the displaying step are encoded symbols.

10. The method of claim 2, wherein the digital interface symbol
2 information displayed by the displaying step is decoded information.

11. The method of claim 1, wherein the encoded symbols comprise 10-bit
2 symbols of an 8b/10b encoded interface.

12. The method of claim 2, wherein the decoded information comprises 8-
2 bit data values and command codes of an 8b/10b encoded interface.

13. The method of claim 1, further comprising searching the digital
2 interface symbol information for preselected symbol information.

14. The method of claim 1, further comprising triggering storage of the set
2 of data samples based upon matching all or part of preselected symbol information with the digital interface symbol information.

15. The method of claim 14, wherein the triggering step also repositions
2 the digital interface symbol information and the representation of the at least one analog signal to a specified point.

16. The method of claim 1, wherein the displaying step also displays high-
2 level interface information derived from the decoded symbols with the representation of the at least one analog signal in a correlated fashion.

17. The method of claim 16, further comprising searching the high-level
2 interface information for preselected symbol information.

18. The method of claim 16, further comprising triggering storage of the
2 set of data samples based upon matching all or part of preselected symbol information with the high-level interface information.

19. The method of claim 18, wherein the triggering step also repositions
2 the high-level interface information and the representation of the at least one analog signal to a specified point.

20. The method of claim 1, wherein the displaying step also displays at
2 least one clock location with the representation of the at least one analog signal in a correlated fashion.

21. An electronic device employing the method of claim 1.

22. A system for displaying digital interface symbol information from at
2 least one analog signal, the digital interface symbol information including encoded symbols and decoded information, the system comprising:

4 means for capturing a set of data samples of the at least one analog signal at a
frequency at least as high as the switching rate of the at least one analog signal;
6 means for converting the set of data samples into at least one serial bit stream
using a clock;
8 means for searching the at least one serial bit stream for one or more sync
symbols;
10 means for identifying the encoded symbols in the at least one serial bit stream
using the sync symbols; and
12 means for displaying at least some of the digital interface symbol information
with a representation of the at least one analog signal in a correlated fashion.

23. The system of claim 22, further comprising means for decoding the
2 encoded symbols into the decoded information.

24. The system of claim 22, wherein the frequency of the capturing means
2 is at least eight times as high as the switching rate of the at least one analog signal.

25. The system of claim 22, further comprising means for recovering the
2 clock from the at least one analog signal, the clock being an electronic signal.

26. The system of claim 22, further comprising means for recovering the
2 clock from the set of data samples, the clock being a list of locations in time relative
to the set of data samples.

27. The system of claim 22, wherein the digital interface symbol
2 information displayed by the displaying step are encoded symbols.

28. The system of claim 23, wherein the digital interface symbol
2 information displayed by the displaying step is decoded information.

29. The system of claim 22, wherein the encoded symbols comprise 10-bit
2 symbols of an 8b/10b encoded interface.

30. The system of claim 23, wherein the decoded information comprises 8-
2 bit data values and command codes of an 8b/10b encoded interface.

31. The system of claim 22, further comprising means for searching the
2 digital interface symbol information for preselected symbol information.

32. The system of claim 22, further comprising means for triggering
2 storage of the set of data samples based upon matching all or part of preselected
symbol information with the digital interface symbol information.

33. The system of claim 32, wherein the triggering means also repositions
2 the digital interface symbol information and the representation of the at least one
analog signal to a specified point.

34. The system of claim 22, further comprising means for displaying high-
2 level interface information derived from the decoded symbols with the representation
of the at least one analog signal in a correlated fashion.

35. The system of claim 34, further comprising means for searching the
2 high-level interface information for preselected symbol information.

36. The system of claim 34, further comprising means for triggering
2 storage of the set of data samples based upon matching all or part of preselected
symbol information with the high-level interface information.

2 37. The system of claim 36, wherein the triggering means also repositions
the high-level interface information and the representation of the at least one analog
signal to a specified point.

2 38. The system of claim 22, wherein the means for displaying also
displays at least one clock location with the representation of the at least one analog
signal in a correlated fashion.

2 39. A system for displaying digital interface symbol information from at
least one analog signal, the digital interface symbol information including encoded
symbols and decoded information, the system comprising:
4 a data sampler configured to capture a set of data samples of the at least one
analog signal at a frequency at least as high as the switching rate of the at least one
6 analog signal;
a data converter configured to convert the set of data samples into at least one
8 serial bit stream using a clock;
a synchronizer configured to search for one or more sync symbols in the at
10 least one serial bit stream for one or more sync symbols, and identify the encoded
symbols in the at least one serial bit stream using the sync symbols; and
12 a display engine configured to display at least some of the digital interface
symbol information with a representation of the at least one analog signal in a
14 correlated fashion.

2 40. The system of claim 39, further comprising a decoder configured to
decode the encoded symbols into the decoded information.

2 41. The system of claim 39, wherein the frequency of the capturing means
is at least eight times as high as the switching rate of the at least one analog signal.

2 42. The system of claim 39, further comprising a clock recoverer
2 configured to recover the clock from the at least one analog signal, the clock being an
electronic signal.

2 43. The system of claim 39, further comprising a clock recoverer
2 configured to recover the clock from the set of data samples, the clock being a list of
locations in time relative to the set of data samples.

2 44. The system of claim 39, wherein the digital interface symbol
2 information displayed by the displaying step are encoded symbols.

2 45. The system of claim 40, wherein the digital interface symbol
2 information displayed by the displaying step is decoded information.

2 46. The system of claim 39, wherein the encoded symbols comprise 10-bit
2 symbols of an 8b/10b encoded interface.

2 47. The system of claim 40, wherein the decoded information comprises 8-
2 bit data values and command codes of an 8b/10b encoded interface.

2 48. The system of claim 39, further comprising a search/trigger engine
2 configured to search the digital interface symbol information for preselected symbol
information and trigger storage of the set of data samples based upon matching all or
4 part of preselected symbol information with the digital interface symbol information.

2 49. The system of claim 48, wherein the search/trigger engine also
2 repositions the digital interface symbol information and the representation of the at
least one analog signal to a specified point.

2 50. The system of claim 39, further comprising a display engine
3 configured to display high-level interface information derived from the decoded
4 symbols with the representation of the at least one analog signal in a correlated
5 fashion.

2 51. The system of claim 50, further comprising a search/trigger engine
3 configured to search the high-level interface information for preselected symbol
4 information and trigger storage of the set of data samples based upon matching all or
5 part of preselected symbol information with the high-level interface information.

2 52. The system of claim 51, wherein the search/trigger engine also
3 repositions the high-level interface information and the representation of the at least
4 one analog signal to a specified point.

2 53. The system of claim 39, wherein the display engine also displays at
3 least one clock location with the representation of the at least one analog signal in a
4 correlated fashion.